

S.N. 09/851,674 (CL-1666)

RESPONSE TO OFFICE ACTION

REMARKS

The claims have been rejected under 35 U.S.C. §§101, 112, and 103. Each basis of rejection is treated in turn.

I. Amendments

The claims have been amended to more particularly point out and more distinctly claim the subject matter of the present invention.

The specific amendments to claim 35, step a), claim 42, step e), claim 44, step a(i) and claim 68, step a) have been amended to express the invention more concisely.

The specific amendments to claim 35, step c) and claim 68, step c) have been added to overcome the rejections based upon 35 U.S.C. §112. Antecedent basis for these amendments is derived from at least page 2, lines 32-35; page 3, lines 28-32; and page 30, line 31 to page 31, line 15. The amendment to step e) of these claims is to insure conformity with the preamble.

The amendments to claim 42, steps a) through d) incorporate into that claim the steps (contained in amended claim 35) required to produce a k-tuple table. The amendments to claim 42, step h) incorporates into that claim the step [equivalent to that in amended claim 35, step (d)] required to produce a sorted (k+1)-tuple table. The amendments to claim 42, step i) incorporates into that claim the language of amended claim 35, step (e) to more clearly define the eligible subject matter present in claim 42. The language in steps c), e) and g) overcome rejections based upon 35 U.S.C. §112.

The amendments to claim 43 are submitted to place the claim in more proper form. The amendments to step ii) [former step b)] are submitted to overcome rejections based upon 35 U.S.C. §112.

The amendment to claim 44, step a), substep iii) A) ("like/same") is submitted to overcome a rejection based upon 35 U.S.C. §112. The amendments to claim 44, step a), substeps iii) and iv) more clearly define the invention to avoid rejection under 35 U.S.C. §101. Antecedent basis for this last amendment is derived from at least page 11, line 8 to page 12, line 30.

The amendments to claim 45, step g) are submitted to insure conformity with the preamble of claim 35, from which it depends.

The amendment to the preamble of claim 53 is submitted to insure conformity with its parent claim 45.

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The amendments to claim 66 overcome rejections based upon 35 U.S.C. §112 and overcome a rejection under 35 U.S.C. §103. The amendment to claim 67 is necessary to insure conformity with its parent claim 66.

The amendments to claim 68 avoid a rejection based upon 35 U.S.C. §112 and insure conformity with its preamble.

II. Rejection Under 35 U.S.C. §101

The examiner persists in his rejection of claims 35-53 and 66-68 as being presented to non-statutory subject matter. Since the present invention as recited in those claims operates to identify and to select patterns of alphabetic symbols present in a set of one or more symbol sequences, it is sufficiently "useful, tangible and concrete" to qualify as statutory subject matter under 35 U.S.C. §101. Accordingly, the rejection of claims 35-53 and 66-68 is traversed.

By the tenor of the rejection it appears that the examiner has misapprehended the nature of the present invention.

The claims are directed to eligible subject matter. The methods and programs claimed in this application operate on physical things to produce a useful, tangible and concrete result.

As recited in the claims, the invention discovers patterns in a set of sequences of symbols. The claims clearly recite that symbols are members of an alphabet. An alphabetic character, whether represented in print (as a collection of ink molecules on a substrate) or electronically (as a collection of electrons), is, in and of itself, a physical thing. Moreover, the "thing" is a physical object, whether that be a chemical composition of a protein, an amino acid, or any other physical entity. A sequence, as a string of such characters is also, in and of itself, a physical thing. A "sequence" cannot exist in isolation. A "sequence" must have "things" in it.

The present invention identifies patterns of symbols present in the sequences presented. The patterns that are identified in accordance with the inventive method themselves contain information, such as physical or chemical properties produced when certain combinations of chemicals are present. This is the useful, tangible and concrete result.

The invention is not directed to a program for solving a mathematical equation. The sequences involved are not mathematical equations. The symbols involved in the sequences are not variables for which any values may be substituted. The statutory

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character of the present invention is not based solely upon the fact that each alphabetic character represents something else.

The examiner contends that the invention does not "select any data" but instead seeks "merely [to] organize, sort, and arrange data" This contention is also erroneous. The present invention does contain the equivalent of a "selection" step.

Each of the independent claims 35, 42, 44 and 68 requires the definition of one or more patterns by "collecting" adjacent rows or symbols (claim 44) with "identical difference-in-position values". "Collecting" in accordance with a predetermined characteristic (e.g., identical difference-in-position value) in order to define patterns clearly recites a "selecting" step.

In sum, the identification of patterns of symbols that occur within plural sequences and which contain information about physical things is sufficiently "useful, tangible and concrete" to qualify as statutory subject matter under 35 U.S.C. §101. State Street Bank & Trust Company v. Signature Financial Group, Inc., 47 USPQ2d 1596 (Fed. Cir. 1998).

III. Rejections under 35 U.S.C. §112

Claims 35-53 and 66-68 have been rejected as indefinite under 35 U.S.C. § 112, Second Paragraph.

Each claim for which specific comments have been made is treated separately.

A. Claim 35, step (c) and claim 68, step (c) have been amended to more clearly define the manner in which the w master offset tables are used to form a k-tuple table.

B. Claim 35, step (iii); claim 42, step (b); claim 44, step (A); and claim 68, step (c); have been amended to overcome a perceived ambiguity. The examiner is requested to reconsider this basis of rejection as unnecessary for the reasons pointed out in the earlier response. The amendments to the claim submitted in response to the examiner's requirements result in claims that are now linguistically awkward.

C. Claim 43, step (b) have been amended in response to both of the examiner's comments. The reference to claim 35, step (c)(ii) appears to have been made in error. Any inconvenience is regretted.

D. Claim 66 has been amended to make more clear that the "plurality of data structures" mentioned in the preamble comprises w master offset table data structures, a k-tuple table data structure and a sorted k-tuple table data structure.

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IV. Rejections under 35 U.S.C. §103

Claims 66-67 have been rejected as unpatentable under 35 U.S.C. § 103(a) as evidenced by U.S. Patent 5,577,249 (Califano).

Claim 66 has been amended to incorporate functional language that clearly distinguishes the claimed data structures from Califano.

Note: The term "CRF" found in the rejection is not understood. It is assumed that term means "computer readable medium" as mentioned by the examiner in the first Office Action.

These claims are believed allowable.

V. Renumbing of Claims Upon Allowance.

In accordance with the practice under 37 C.F.R §1.126 the examiner is requested to renumber the claims upon allowance in accordance with the following Table. The renumbering is believed appropriate to keep in sequence all claims dependent from original claim 35 and to present broader dependent claims before narrower ones. [Non-sequential re-numberings are indicated by an asterisk ("*").]

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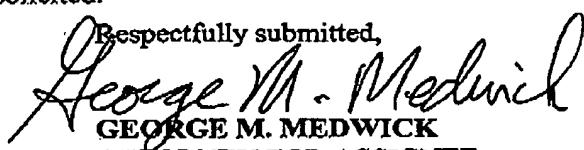
Table

Original Claim Number	Allowed Claim Number
35	1
36	2
37	3
38	4
39	7 *
40	5 *
41	6 *
42	17 *
43	18 *
44	19 *
45	8
46	9
47	10
48	11
49	12
50	13
51	14
52	15
53	16
66	20 *
67	21 *
68	22 *

VI. Conclusion

For the reasons set forth it is submitted that this application stands in condition for allowance, which action is earnestly solicited.

Respectfully submitted,



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Dated:

Sept. 14, 2005